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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,372	07/18/2003	Shiro Akiyama	10517/178	4051

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EXAMINER

YUAN, DAH WEI D

ART UNIT PAPER NUMBER

1745

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/621,372

Applicant(s)

AKIYAMA ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) 17-21 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 07182003.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**SEALING STRUCTURE OF FUEL CELL AND  
MANUFACTURING METHOD OF SAME**

Examiner: Yuan

S.N. 10/621,372

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July 19, 2006

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-16, in Paper filed June 22, 2006 is acknowledged. Therefore, claims 17-21 are withdrawn from consideration.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4,7,8,10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warszawski et al. (US 4,590,134) in view of Cisar et al. (US 6,533,827).

With respect to claims 1,17, Warszawski et al. teach a fuel cell stack comprising a plurality of separators (3), wherein the separators have protruding portions which are formed on end portions of the each of the separators. See Figures 1,17. However, Warszawski et al. do not teach the protruding portion contacts a reference portion of an assembly jig during assembly of the fuel cell. Cisar et al. teach the bonding of fuel cell stacks, in which an assembly jig and a positioning jig are used to keep the fuel cell stack in alignment during assembly. See Example 1. Therefore, it would have been obvious to one of ordinary skill in the art to use an assembly jig during assembly of the fuel cell stack of Warszawski such that the protruding portion of the

separator is in contact with the assembly jig, because Cisar et al. teach the use of an assembly jig to help align the fuel cell stack.

With respect to claim 2, Warszawski et al. teach the protruding portion protrudes in a direction perpendicular to the stacked direction of the fuel cell. See column 3, Lines 26-36; Figure 1.

With respect to claim 3, Warszawski et al. teach the fuel cell assembly is sealed by an insulating plastic material. There is no sign that the sealant comes out from the tip portion of the separator. See Column 2, Lines 8-48.

With respect to claim 4, It would have been an obvious matter of design choice to manufacture the protruding portion with a predetermined height, since such a modification would have involved a mere change in the shape of the component. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). It is also the position of the examiner that the criticality on the height of the protruding portion does not provide patentable distinction.

With respect to claim 7, Warszawski et al. teach the separator has a rectangular shape and the protruding portion is formed at the corner portion of the separator. See Figures 1,17.

With respect to claim 8, Warszawski et al. teach the separator has a plurality of protruding portions. See Figures 1,17.

With respect to claim 10, Warszawski et al. teach the protruding portion has a cross-sectional area of rectangle. See Figures 1,17.

With respect to claim 12, Warszawski et al. teach the protruding portion can be located inside of the separator. See Figure 7.

With respect to claim 13, Warszawski et al. teach the separator has a plurality of gas passage. See Figures 12,13.

4. Claims 5,6,14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warszawski et al. (US 4,590,134) and Cisar et al. (US 6,533,827) as applied to claims 1-4,7,8,10-13 above, and further in view of Kato et al. (US 2002/0187384).

Warszawski et al. and Cisar et al. teach a fuel cell stack as described in Paragraph 3 above. However, Warszawski et al. and Cisar do not teach the circumferences of the separators adjacent to each other are different and displaced. Kato et al. teach a seal structure of a fuel cell wherein the adjacent separators have different sizes because the problem associated with bulging of the sealant between separators can be eliminated. See Paragraphs 62,63; Figure 6. Therefore, it would have been obvious to one of ordinary skill in the art to use separator adjacent to each other having different sizes such that the bulging of the sealant between separators can be eliminated.

5. Claims 1-4,8,9,11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 6,635,378 B1) in view of Cisar et al. (US 6,533,827).

With respect to claims 1,17, Yang et al. teach a fuel cell stack comprising a plurality of separators (10), wherein the separators have protruding portions which are formed on end portions of the each of the separators. See Figures 1,7. However, Yang et al. do not teach the protruding portion contacts a reference portion of an assembly jig during assembly of the fuel

cell. Cisar et al. teach the bonding of fuel cell stacks, in which an assembly jig and a positioning jig are used to keep the fuel cell stack in alignment during assembly. See Example 1. Therefore, it would have been obvious to one of ordinary skill in the art to use an assembly jig during assembly of the fuel cell stack of Yang such that the protruding portion of the separator is in contact with the assembly jig, because Cisar et al. teach the use of an assembly jig to help align the fuel cell stack.

With respect to claim 2, Yang et al. teach the protruding portion protrudes in a direction perpendicular to the stacked direction of the fuel cell. See Figures 1,7.

With respect to claim 3, Yang et al. teach the sealant is provided between the separator and the MEA. There is no indication that the sealant comes out from the tip portion of the separator. See Figures 7-9.

With respect to claim 4, It would have been an obvious matter of design choice to manufacture the protruding portion with a predetermined height, since such a modification would have involved a mere change in the shape of the component. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). It is also the position of the examiner that the criticality on the height of the protruding portion does not provide patentable distinction.

With respect to claim 8, Yang et al. teach the separator has a plurality of protruding portions. See Figures 1,7.

With respect to claim 9, Yang et al. teach the cross section of the protruding portion is substantially circular. See Figures 1,7.

With respect to claim 12, Warszawski et al. teach the protruding portion can be located inside of the separator. See Figure 4.

With respect to claim 13, Yang et al. teach the separator has a plurality of gas passage. See Figures 1,7.

6. Claims 5,6,14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 6,635,378 B1 and Cisar et al. (US 6,533,827) as applied to claims 1-4,8,9,11-13 above, and further in view of Kato et al. (US 2002/0187384).

Yang et al. and Cisar et al. teach a fuel cell stack as described in Paragraph 5 above. However, Yang et al. and Cisar et al. do not teach the circumferences of the separators adjacent to each other are different and displaced. Kato et al. teach a seal structure of a fuel cell wherein the adjacent separators have different sizes because the problem associated with bulging of the sealant between separators can be eliminated. See Paragraphs 62,63; Figure 6. Therefore, it would have been obvious to one of ordinary skill in the art to use separator adjacent to each other having different sizes such that the bulging of the sealant between separators can be eliminated.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
July 19, 2006



**DAH-WEI YUAN**  
**PRIMARY EXAMINER**